


Honors Geometry

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 Solve each equation. Remember to check for extraneous solutions.

1) $90 = 10\sqrt{1 - 16b}$

2) $-6\sqrt{7 - 3v} = -30$

3) $14 = 7\sqrt{-8 - 2x}$


4) $12 = \sqrt{\frac{n}{4}} + 4$

5) $\sqrt{21 - a} = \sqrt{a - 3}$

6) $\sqrt{12 - 2k} = \sqrt{3k + 7}$

7) $\sqrt{2x - 3} = \sqrt{17 - 2x}$

8) $\sqrt{12 - x} = \sqrt{3x - 24}$

 9) $n = \sqrt{6n}$

10) $m = \sqrt{6 - m}$


11) $x = \sqrt{-50 + 15x}$

12) $x = \sqrt{56 + x}$

13) $\sqrt{3 - 2n} = n - 2$

14) $5 + \sqrt{5 - b} = b$

15) $\sqrt{3r + 43} = r + 5$

16) $x + 1 = \sqrt{5x + 29}$


Honors Geometry

Date _____ Period _____

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Solve each equation. Remember to check for extraneous solutions.

$$1) 90 = 10\sqrt{1-16b} \quad 1-16b = 81$$

$$(9)^2 = (\sqrt{1-16b})^2 \quad -16b = 80$$

$$\quad \quad \quad \frac{-76}{-76} \quad \frac{-80}{-76}$$

$$\quad \quad \quad \boxed{b = -5}$$

$$3) 14 = 7\sqrt{-8-2x}$$

$$2 = \sqrt{-8-2x}$$

$$4 = -8-2x \quad -2x = 12$$

$$\quad \quad \quad \boxed{x = -6}$$

$$5) \sqrt{21-a} = \sqrt{a-3}$$

$$21-a = a-3$$

$$24 = 2a \quad \boxed{a = 12}$$

$$7) \sqrt{2x-3} = \sqrt{17-2x}$$

$$2x-3 = 17-2x$$

$$4x = 20 \quad \boxed{x = 5}$$

$$9) n = \sqrt{6n}$$

$$n^2 = 6n$$

$$n^2 - 6n = 0$$

$$n(n-6) = 0$$

$$\boxed{n = 0, n = 6 \checkmark}$$

$$11) x = \sqrt{-50+15x}$$

$$x^2 = -50+15x$$

$$x^2 - 15x + 50 = 0$$

$$(x-5)(x-10)$$

$$\boxed{x = 5, 10 \checkmark}$$

$$13) \sqrt{3-2n} = n-2$$

$$3-2n = (n-2)^2$$

$$3-2n = n^2-4n+4$$

$$n^2-2n-1 = 0$$

$$(n-2)(n+1)$$

$$n = 2, -1$$

$$15) \sqrt{3r+43} = r+5$$

$$3r+43 = (r+5)^2$$

$$3r+43 = r^2+10r+25$$

$$= r^2+7r-18$$

$$(r+9)(r-2)$$

$$\boxed{r = 2, 9 \checkmark}$$

$$\checkmark: \sqrt{3-2(2)} = 2-2x$$

$$\checkmark: \sqrt{3+2} = -1-2x$$

No solution
(both ans don't work)

$$2) -6\sqrt{7-3v} = -30 \quad \sqrt{7-3v} = 5$$

$$7-3v = 25$$

$$-3v = 18$$

$$\boxed{v = -6}$$

$$4) 12 = \sqrt{\frac{n}{4}} + 4 \quad 8 = \sqrt{\frac{n}{4}}$$

$$64 = \frac{n}{4}$$

$$\boxed{n = 256}$$

$$6) \sqrt{12-2k} = \sqrt{3k+7}$$

$$12-2k = 3k+7$$

$$5 = 5k \quad \boxed{k = 1}$$

$$8) \sqrt{12-x} = \sqrt{3x-24}$$

$$12-x = 3x-24$$

$$36 = 4x \quad \boxed{x = 9}$$

$$10) m = \sqrt{6-m}$$

$$m^2 = 6-m$$

$$m^2 + m - 6 = 0$$

$$(m+3)(m-2)$$

$$\boxed{m = -3, 2 \checkmark}$$

$$12) x = \sqrt{56+x}$$

$$x^2 = 56+x$$

$$x^2 - x - 56 = 0$$

$$(x-8)(x+7)$$

$$\boxed{x = 8, -7 \checkmark}$$

$$14) 5 + \sqrt{5-b} = b$$

$$5-b = (b-5)^2$$

$$5-b = b^2-10b+25$$

$$= b^2-9b+20$$

$$(b-4)(b-5)$$

$$b = 4, 5 \checkmark$$

$$\boxed{x = 5}$$

$$16) x+1 = \sqrt{5x+29}$$

$$(x+1)^2 = 5x+29$$

$$x^2+2x+1 = 5x+29$$

$$x^2-3x-28 = 0$$

$$(x+4)(x-7)$$

$$x = -4, 7 \checkmark$$

$$\boxed{x = 7}$$